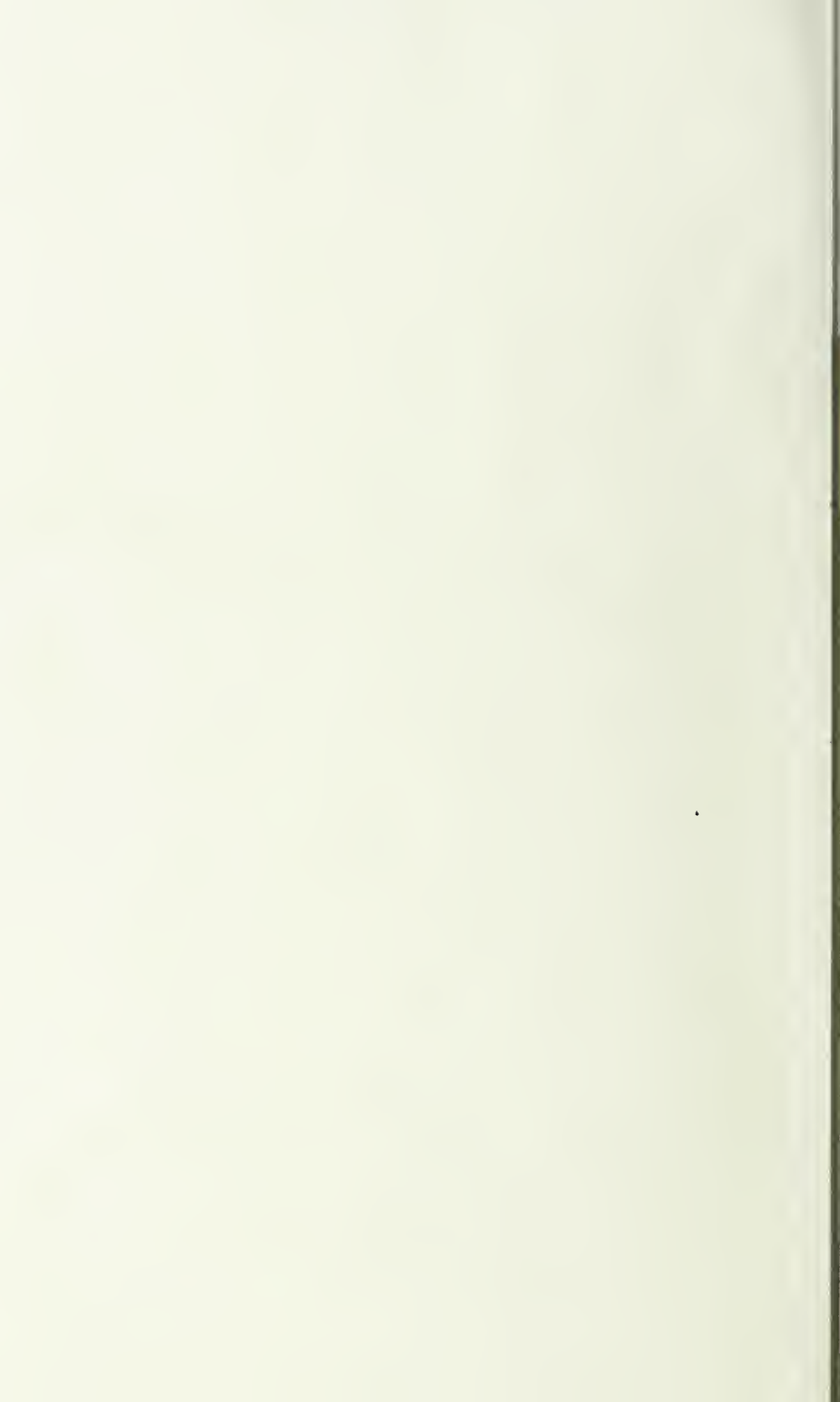






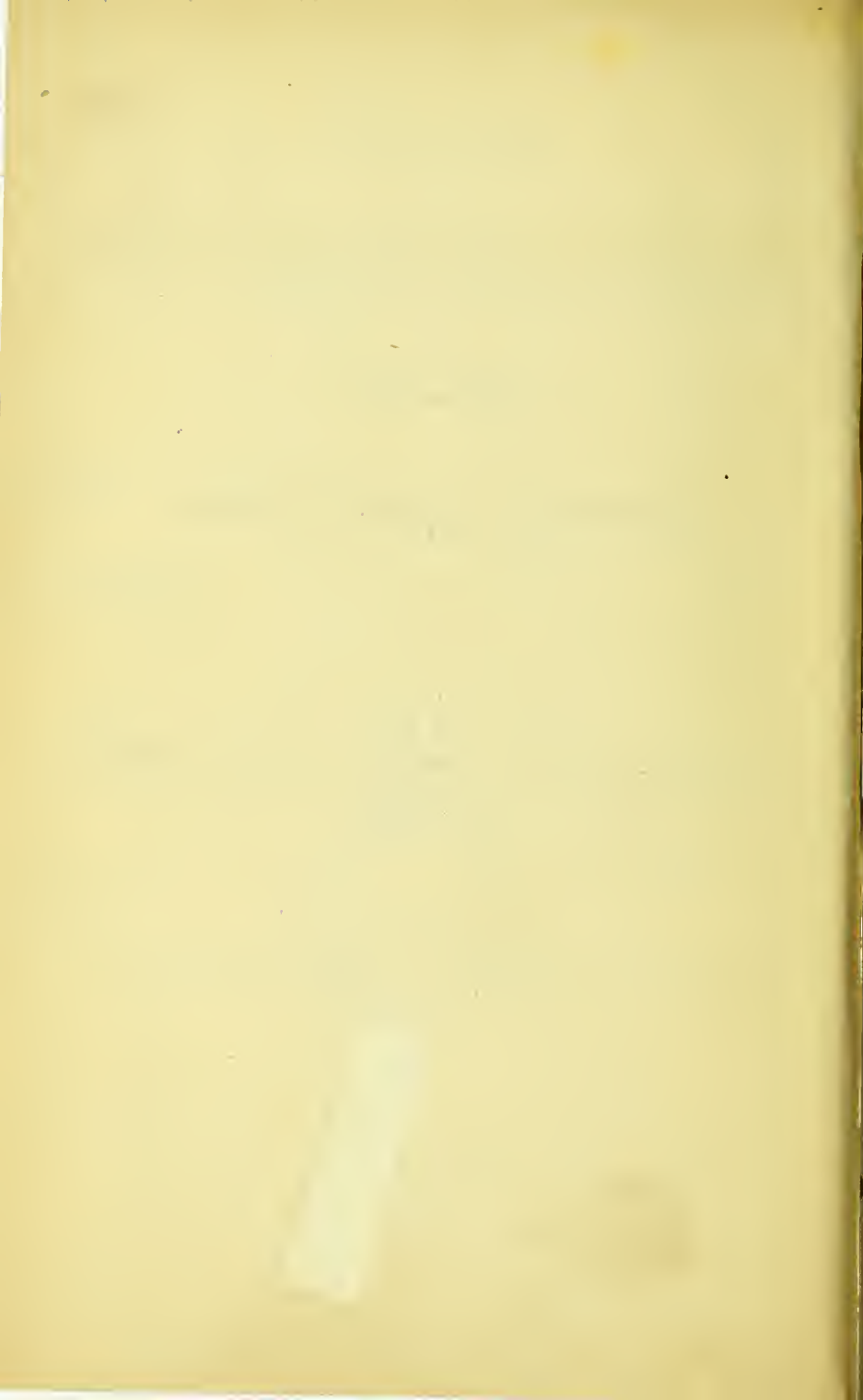
ON THE  
EMPLOYMENT  
OF  
GRADUAL DILATING METALLIC SOUNDS  
IN  
*The Treatment*  
OF  
STRICTURE OF THE URETHRA.

BY  
T. VINCENT JACKSON, ESQ.

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AND FORMERLY HOUSE SURGEON TO UNIVERSITY COLLEGE  
HOSPITAL, LONDON.

(READ BEFORE THE BIRMINGHAM AND MIDLAND COUNTIES BRANCH OF THE BRITISH MEDICAL  
ASSOCIATION, DECEMBER 12, 1861.)

WOLVERHAMPTON :  
WILLIAM PARKE, HIGH STREET.  
MDCCCLXII.



TO THE

Physicians and Surgeons of the South Staffordshire General Hospital,

WOLVERHAMPTON.

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GENTLEMEN,

IN retiring from my office of Resident Surgeon to the South Staffordshire General Hospital, I feel I cannot possibly do so without expressing my sincere thanks for the great kindness I have at all times received. I beg especially to allude to Dr. Millington, Mr. Coleman, and Mr. Nesbitt, and to acknowledge their many acts of courtesy. The two latter gentlemen I have to thank for their readiness at all times to afford me every opportunity for pursuing my practical investigations.

I beg to remain,

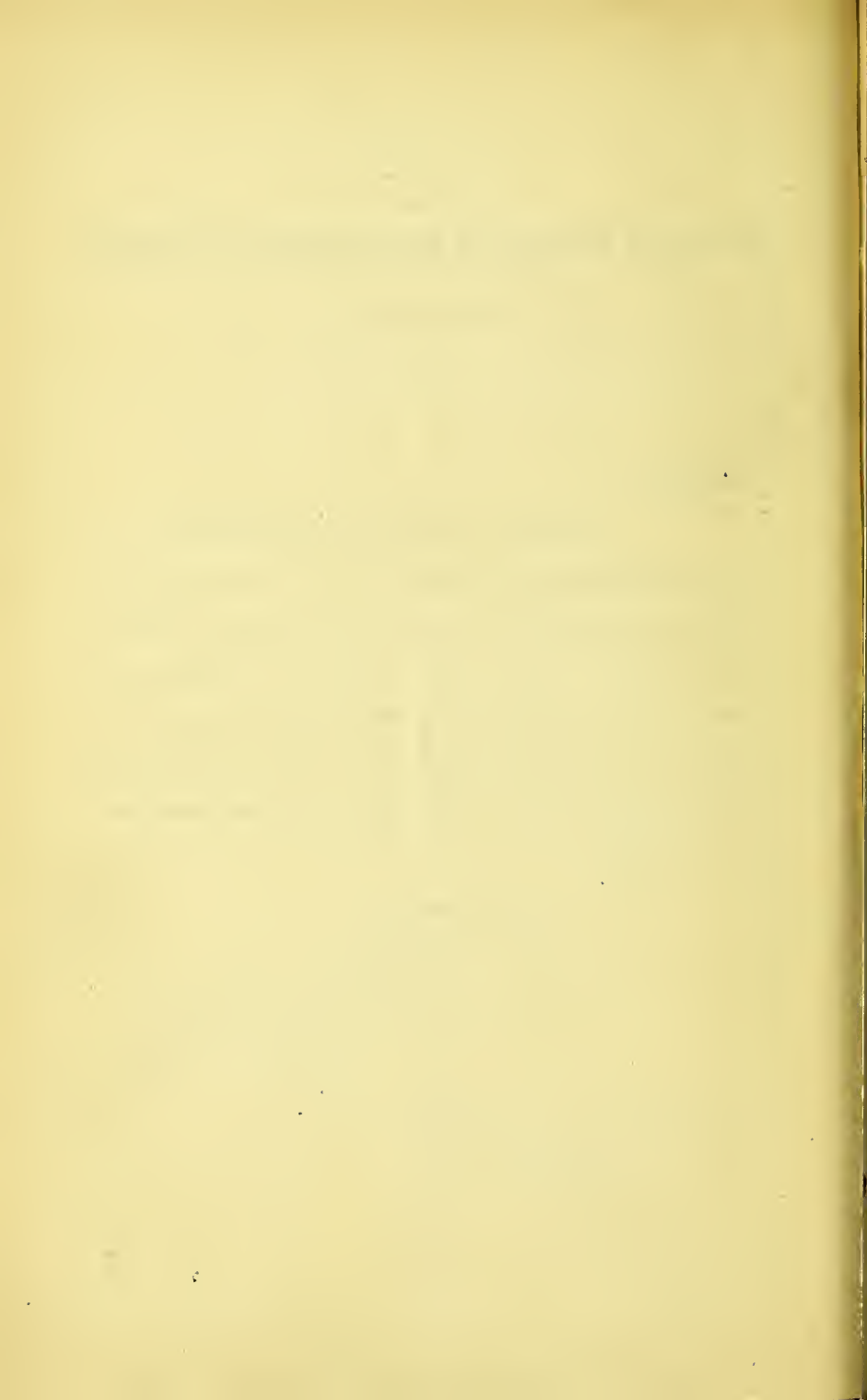
Gentlemen,

Yours most truly and sincerely,

T. VINCENT JACKSON.

Darlington Street, Wolverhampton,

June, 1862.



# On the Employment of Gradual Dilating Metallic Sounds

IN THE TREATMENT OF

## STRICTURE OF THE URETHRA.

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The subject that I wish to bring before the members of the "Birmingham and Midland Counties Branch of the British Medical Association" is the treatment of simple cases of stricture of the urethra by means of gradual dilating metallic sounds.

In the present day the usual plan adopted by surgeons for the treatment of these cases is the method by dilatation. For its employment instruments of some sort are required, and metallic and non-metallic bougies are usually preferred. For my own part I am convinced that the best instrument as a rule to employ in dilating strictures is a metal one. To a practised hand the urethra can with it be more perfectly, more easily, and more safely explored, its condition determined, and the seat and orifice of a stricture most accurately learnt. It has been stated<sup>1</sup> "that the common bougie much more rarely tears the membrane of the urethra than metallic instruments." This, of course, is generally admitted; but the mere fact of more care and tenderness being required in employing and directing an instrument is no sufficient argument against its use, for with such an instrument as No.  $\frac{1}{2}$  (no larger than a large sized needle), I admit that great delicacy is required in its manipulation; for if the force used in its guidance be too great, a lesion of the urethral mucous membrane is sure to occur; still I do not regard this as in any way negating the employment of fine metallic catheters or sounds, but rather the reverse, for in these cases *arte non vi* ought never to be forgotten. It appears to me that one of the great difficulties in curing tight strictures is, in many cases, that the orifice is situated at some point outside the urethral centre, for when the aperture of entrance has been found the future

<sup>1</sup> Cooper's Surgical Dictionary, p. 132.

progress of the case is in the hands of the surgeon, or, as Mr. Samuel Cooper has it,<sup>2</sup> "if the end of a small bougie can be introduced into the stricture, the cure is then in our power," and for this purpose I think no instrument equals the metallic one.

Of late the construction of metallic sounds and catheters has been much attended to, and every now and then various surgeons have devised, varied, and altered their shape, curve, length, &c. Many of these alterations have been made for individual purposes, and are now almost matters of history; others, being more practical and useful, have become somewhat more generally adopted: as for instance the conical sounds and the instruments of Wakley and Perréve. The so-called conical catheters and sounds have been known to surgeons for a long period. The French surgeons, Mr. Cross<sup>3</sup> tells us, employed a fine conical catheter for the treatment of tight strictures, and he relates a case in extenso in which he witnessed M. Roux use the instrument; he says that "unsuccessful attempts were made for several days to pass an instrument into the bladder by gentle means. The patient was still able to void his urine, although with great pain and difficulty. M. Roux took a conical silver catheter with a very slight curvature and an extremity almost pointed, and by force regularly applied, he made his way into the bladder in spite of all opposition." The surgeon in this case evidently used the instrument, not as a dilator, but rather as a trocar, and all such profanation of the instrument is much to be deplored.

Among English surgeons, Sir A. Cooper<sup>4</sup> mentions that he used a conical silver catheter, "the point of which having entered the stricture the further it passes the greater is the dilatation produced; this bougie," says he, "I have found extremely serviceable, and is the best with which I am acquainted."

Mr. Henry Thompson, in his work on "Stricture," also speaks of the conical sounds, and employs a set of six instruments, the smallest commencing at the point as 2, and at about three inches from it reaching that of 4, and the largest commencing as 9, and increasing to 12.

In considering the question of the applicability of conical sounds for the treatment of stricture of the urethra, it appeared to me that a

<sup>2</sup> Cooper's Surgical Dictionary, p. 1327.

<sup>3</sup> Medical Sketches of Paris.

<sup>4</sup> Lecture on Surgery, p. 511.

slight alteration in their construction would be an advantage in many cases. What I mean is—that the form of the instrument, instead of resembling simply an elongated cone, should be made so as to consist of two cones, their bases being conjoined; and the following plan is the one I have adopted in their formation:—

The first cone commences at the extreme point of the instrument, and extends for a distance of three and three-quarter inches, its base here meeting with the base of the second cone, and this latter gradually and almost imperceptibly diminishing in size reaches the handle a distance of  $5\frac{1}{4}$  inches. From such a construction it is evident that the maximum cylindrical thickness is obtained at a certain known

distance from the point, for up to this point the caliber of the instrument gradually increases, and from this point it gradually decreases; for instance, let us say that the point of the sound is equal to 3, three inches and three-quarters from the point it is equal to 6, and at the handle—a distance of about 5 inches—it equals 4; the first cone therefore is shorter and of a less circumference (except at the base) than the second.

Within the last few years the principle of gradual, regular, and even progressive <sup>now</sup> as a desideratum in the construction of stricture instruments, has become more generally received, and Mr. Wakley has devised instruments for this purpose. The set consists of variously sized tubes, but previously to their employment a conductor of a comparative large size must be passed. The stricture instruments that I use consist of a series of five, and are thus constructed:—

No. 1, commencing as No. 1 (Coxeter's scale), and increasing to No. 4.

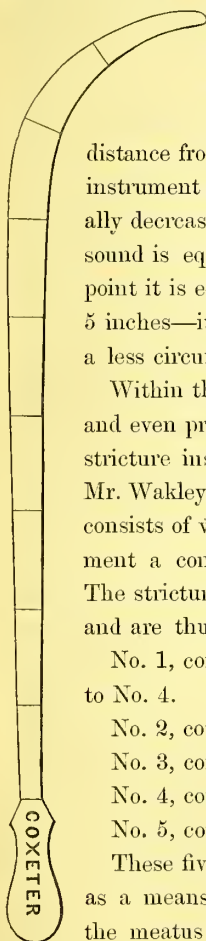
No. 2, commencing as No. 3, and increasing to No. 6.

No. 3, commencing as No. 5, and increasing to No. 8.

No. 4, commencing as No. 7, and increasing to No. 10.

No. 5, commencing as No. 9, and increasing to No. 12.

These five are made of solid steel, and highly polished, and as a means of measuring the distance of the stricture from the meatus urinarius a scale of inches and half inches may be marked on them. The cost of the whole set is little, but I think their usefulness is great.



It will be noticed that the form of these instruments is perfectly cylindrical throughout; the cylinder circumferentially increasing from the point of the sound to a certain distance along the shaft, and again from this point gradually diminishing. Further a matter of great importance in their construction is that the commencement of an instrument of greater cylindrical caliber is one size less than the extreme size of the sound of the next less cylindrical circumference. Lastly, it is manifest that the whole range of the usual catheter scale is obtained in a set of instruments, numbering only five for their completion. This point I look upon as of manifest importance, for it becomes evident that, with a set of instruments of less than half the number of those in ordinary use, the same result can be obtained, and the time occupied in its performance is of proportionate less duration.

In the *Medical Times and Gazette* for February 21, 1861, Mr. Henry Smith is at some pains to demonstrate "the importance of carrying on dilatation of the urethral canal, slowly and gradually, so that as little disturbance as possible should be produced, either in the part operated upon, or in the system generally." Further on he mentions the formation by himself and Mr. Bishop of a gauge, so that the increments in the different sizes should be the 75th part of an inch in the scale throughout. At this rate a set of instruments, constructed on this plan, and ranging from 1 to 12, as many as fifteen would be required for the completion of the set, entailing, I think, a very heavy and unnecessary expense upon the purchaser, and, in their use, inflicting prolonged treatment upon the patient. From a considerable experience in the use of the dilating metallic instruments, I am enabled to state that their conical form considerably facilitates their introduction, and this is especially manifest in the employment of the larger sizes; for the point once fairly within the stricture, every onward movement of the instrument, apparently almost painlessly, and without any perceptible resistance, gradually opens it up, and the dilatation is immediate and effectual. As an instance, I may allude to a case<sup>5</sup> of severe stricture (the details of which I shall presently read), which had existed for thirty years, and the attempts at its dilation had been frequent, but unsuccessful. In four days the No. 5 sound, equivalent to No. 12, passed easily. More than once I have seen the employment

<sup>5</sup> Appendix, case No. XI.

of metallic instruments laid aside, on account of the repeated attacks of rigor invariably following their use. As far as my present experience will allow me to form an opinion, I feel bound to say that I have no record of any one attack of rigor traceable to the employment of the metallic sounds—a fact of great importance; for, although the causation of these rigors is not yet determined, still I am sure the too sudden and rough expansion, or attempts at expansion of old strictures, have often preceded and probably caused them; and if further experience should show that a modification in the form of the instrument will remove, or, at all events, lessen a distressing, and, often times, a dangerous symptom, a still further inducement for the trial of these instruments is added, and an evident demonstration of the success of a mathematically determined progressive cylindrical dilatation.

In alluding forcibly to the employment of metallic instruments, I do not by any means wish it to be inferred that I am impressed with the idea that every case of stricture is to be cured by their means. Certainly not; for there are, I am convinced, conditions of the urethra, and also a naturally irritable temperament, which are far better treated, and met by the employment of other and well-known means.

Perhaps the members present will excuse me, and not regard my observations as in any way presumptuous if I allude shortly to a few points necessary to be attended to preliminary to the treatment of a case of urethral stricture by dilatation. In working out the previous history of a patient it is primarily necessary to learn some points in reference to the kidneys and bladder. As regards the kidneys whether pain has ever been felt in them, and what time it commenced sequential to the period of difficult micturition, and also the duration of the pain. In relation to the bladder, the pathological conditions of congestion and inflammation of the lining membrane, and the existence of hypertrophy or non-hypertrophy of the muscular walls have to be made out. In connection with the former the examination of the urine will soon determine its presence or absence. As regards the latter, it seems to me that hypertrophy of the muscular walls can be diagnosed under two conditions; in the first place when retention of urine exists, or secondly, when there is no retention or evidence of existing cystitis.

When retention of urine exists, and has lasted for some hours ordinarily on percussing over the hypogastric region, the dullness will

extend nearly or quite to the umbilicus, but in cases of hypertrophy the dullness never extends beyond the mid distance between the pubes and umbilicus, and rarely so far, for with the hypertrophic condition of the vesical walls there is a corresponding diminution in the capacity of the organ, owing in part to the increased thickness of the parietes and also to the power of dilatation being lessened. When there is an absence of retention and cystitis, and the existence of the stricture has been of long duration, I have more than once diagnosed hypertrophy of the bladder by the frequent micturition and the impossibility of the urine being retained for a natural period.

Previous to exploring the urethra, the urine and the urinary stream must be noted. A very attentive and precise chemical and microscopic examination of the urine in each case will well repay the surgeon, for much is to be learnt by it, and in many cases the line of treatment to be followed is determined by it. These abnormal changes in the kidneys and bladder are of great importance, and have a direct bearing upon the line of treatment, and their existence or non-existence should always be ascertained.

Desiring a patient suffering from difficult micturition to make water in your presence is always necessary, for not only will it assist the diagnosis before resorting to instruments, but also, when a full exploration of the urethra has to be made, the probable size of the instrument that will pass through the stricture may, in most cases, approximately be ascertained. Nearly 100 years since Heister acknowledged the necessity of always passing large sized instruments for the purpose of exploring the urethra, for, says he,<sup>6</sup> "some approve of their being very small or slender, thinking that thereby they have a more easy passage into the bladder. In this they are much mistaken, because the most slender ones are apt rather to catch and stick in the rugæ and inequalities of the urethra, which often appear very considerable in old men, so that the whole operation may be thereby frustrated."

What Heister taught a century since ought never to be forgotten in practice in the present day, for unless a full sized catheter or sound, as No. 8, is arrested at some point along the canal, the existence of an urethral stricture is never positive or certain.

<sup>6</sup> Heister's Surgery, vol. ii. p. 145.

## APPENDIX.

The following cases are a few out of a number that have been treated by the graduated sounds, and to some, perhaps, it may seem premature to have placed the word "cured" after the termination of the treatment, but as each patient when discharged was instructed how to pass a gum elastic bougie, the means of perpetuating the satisfactory result was always in his own hands, and the relapse of the stricture (if it occurred) would consequently be owing to his own neglect.

*CASE I.—Traumatic Stricture of the Urethra: Previous Dilatation: Subsequent Contraction: Cure.* R. H., aged 51, was admitted as an out-patient of the South Staffordshire Hospital, September 20th, 1860, with stricture of the urethra. Sixteen weeks previously he was discharged from the Hospital, having been admitted for a wound in the perinæum, produced by a fall in a fit, which had opened the urethra. Instruments were passed up to the time he left, as far as No. 8; and he was desired to attend occasionally as an out-patient. This he neglected to do; and, since his discharge, he has had increasing difficulty in micturition, until at last he could hardly pass urine at all. A surgeon had frequently made attempts to pass instruments, but had never succeeded. On his admission, there was considerable hardness in the perinæum along the line of the urethra, but very little pain on pressure. After considerable trouble, I passed No.  $\frac{1}{2}$ . An alkaline sedative mixture was ordered to be taken three times a day, and a warm bath every other night. On September 24th, he had had no rigors after the last attempts; and I again passed No.  $\frac{1}{2}$ , and afterwards No. 1. On September 27th, the stream of urine was improved. Nos. 1 and 2 were passed on this day, and again on October 1st. From this period the treatment was continued uninterruptedly and satisfactorily. A note on April 15th, 1861, says that No. 5 (equal to No 12) was easily passed, there being no narrowing, nor any difficulty.

*REMARKS.*—The graduated instruments were very efficient in this case; for not once was any inconvenience or pain complained of. This, I think, is to be entirely accounted for by their regular progressive form.

*CASE II.—Slight Organic Stricture: Retention of Urine several times previous to Admission: Cure.* J. H., aged 31, was admitted into the South Staffordshire Hospital, April 30th, 1861. He was by occupation a labourer; and was married. He said that seven or eight years previously had had gonorrhœa twice. On both occasions he took medicine, and the discharge disappeared. About four years ago, he noticed that his stream of urine was smaller; and he passed water oftener, and was longer about it. After exposing himself or drinking, the difficulty was greatly increased. The stream of urine became very fine; and on August, 15th, 1859, he had retention. Attempts were made to pass a catheter, but with no success; and at last he came to this hospital, and Mr.

Vincent Jackson passed an instrument, and thirty-two ounces of urine were drawn off. The stricture was situated five inches from the urethral orifice. He continued to attend as an out-patient until October 17th, when Nos. 10 and 11 silver catheters were easily passed.

On January 1st, 1861, the patient presented himself, having had difficulty in passing urine for the last three days. His habits had been temperate. The bladder contained urine to some extent. I introduced No. 6 catheter after a little trouble, and drew off one pint of urine. An alkaline aperient sedative mixture was given.

On April 16th the patient again came, having had difficulty in micturating on the previous day. I passed No. 3 catheter, and drew off his urine. There was no perineal nor prostatic pain. The bowels were free. On April 19th, I passed Nos. 2 and 3 graduated sounds. On the 24th, I passed No. 3 sound without difficulty; but during the night I was called up to see him. I found him unable to pass urine; and every now and then he suffered from violent straining efforts to do so. A No. 3 catheter was passed. I advised him to become an in-patient; and he accordingly on April 30th, was admitted. He was ordered to go to bed, and to have a warm bath, a dose of castor-oil, and the following draught three times a day:

R Potassæ bicarbon. ʒss; sodæ potassio-tart. ʒi; tinctur, hyoscyami ℥x;  
aqnæ ʒi. M.

May 3rd. He was now able to pass his urine more comfortably, and has had no retention since his admission. I passed a No. 3 graduated sound. On May 6th, I passed Nos. 3 and 4; and on May 9th and 13th, Nos. 4 and 5; and on May 21st, he was discharged.

September 8th. The patient visited the hospital. He was now quite free from all symptoms, and was looking well.

REMARKS.—A considerable time elapsed before a satisfactory result was obtained; but, although the habits of the man were temperate, yet his occupation obliged him to expose himself much. There was generally a good deal of congestion about the urethra, as well as irritability of the canal.

CASE. III.—*Very Tight Organic Stricture: Cure.* T. Moore, aged 42, presented himself September 12th, 1859. He was a shoemaker, married, but had no family. In his youth was intemperate, but latterly had been more steady, though at times addicted to drinking. About twenty-five years ago had gonorrhœa, and a gleet discharge continued for fifteen years afterwards. About five years ago he had gonorrhœa for the second time. Twelve months since, after a debauch, he had retention of urine; an instrument was passed, and he was relieved. Afterwards he had frequent desire to pass urine, and the stream was very small. On September 12th, he came to me complaining that his urine ran from him. On examination, his shirt was found much wetted; but there did not appear to be much urine in his bladder, as ascertained by percussion over the pubes. There was no induration in the perinæum; no pain in the loins; and he had never had any. His general health was good. I passed No. 6 catheter along the urethra until it was arrested six inches from the orifice. I tried other and very fine instruments; but nothing passed. Aperient medicine was given, and a warm bath ordered. On September 19th, the

patient had passed urine better, and had no shivering after the last attempt. I was enabled to pass No.  $\frac{1}{2}$ , and to draw off a little urine.

R Potassæ bicarbon. 3 ss; sodæ potassio-tart. 3 i; tinctur. hyoseyami  $\mathfrak{ss}$ ; aquæ  $\mathfrak{z}$  i. ft. laust. ter dis. sumed.

September 25th. Has urinated much better. No.  $\frac{1}{2}$  easily passed into bladder, as well as Nos. 1 and 2. No. 3, after a little trouble passed, and some urine was drawn off.

September 26th. Patient says, spontaneously, "he feels himself again." Is not now obliged to leave his bed at night to pass urine. Passed Nos. 3, 4, and 5.

September 29th. Passed No. 5. Stream good.

October 3rd. Passed No. 5.

October 10th. Discharged.

CASE IV.—*Retention of Urine: very tight Organic Stricture:—Dilatation of Stricture up to No. 7 Catheter.*—R. Hadley, aged 51, married, a puddler, came September 21st, 1859, with retention of urine. Four years ago had gonorrhœa. A short time afterwards he observed that the stream of urine was diminished. Had frequent desire to micturate by day and by night. For the last twelve months has had severe lumbar pains. About eighteen months since, he had retention; and an instrument was passed. Since then the stream had become very small, and each attempt to pass urine was accompanied with much straining and pain. At present there is slight suprapubic prominence, and the percussion note is dull midway between the bladder and umbilicus. A well-marked hardness is felt in the perinæum along the urethra, but no pain. A No. 6 silver catheter was arrested five inches from the orifice of the urethra. Smaller instruments, down to No.  $\frac{1}{2}$ , were used, but unsuccessfully. He was ordered to have a warm bath, and forty minims of tincture of opium immediately. In a very short time he was relieved. On September 23rd, I was enabled to pass No.  $\frac{1}{2}$  partly into the stricture. Alkaline purgative medicine was given. On September 26th, the retention of urine had been relieved by the warm bath and opium. On October 3rd, a No.  $\frac{3}{4}$  catheter was passed into the bladder; on October 6th, a No. 1; and on the 13th, Nos. 1 and 2. The treatment was continued for some time, until about No. 7 was passed.

I met him the other day, and he said he was quite free from his unpleasant symptoms.

CASE V.—*Organic Stricture of the Urethra: Dilatation: Cure.*—J. Ward, aged 30, was admitted April 11th, 1860, under Mr. Coleman, with ulcers on both legs. Shortly after his admission, he informed me he had a bad stricture of the urethra. Six years ago had gonorrhœa; and about six months afterwards he noticed the stream of urine to be smaller. Three years ago he had retention, and a surgeon passed an instrument for him. Twelve months since retention occurred again, and he was brought to this hospital; and many attempts, he said, were made to pass an instrument, but with no success. Leeches were ordered, and he was placed in a warm bath. Urine was passed in the bath. Eventually an instrument was passed through the stricture, and No. 5 catheter was eventually reached, but beyond this nothing could be passed, although many efforts were made to do so. On April 17th,

I passed No. 8 silver catheter into the urethra, and it was arrested five inches down. I then passed Nos. 4, 5, and 6 silver catheters. The treatment was continued with the graduated sounds, and No. 5 was at last passed.

It will be observed that this case demonstrates, to a certain extent, the utility of the gradual dilating sounds, for when the stricture was treated by the ordinary silver catheter, no larger number than a No. 5 was passed; but by employing the steel instrument, No. 5, equivalent to 12, eventually entered the bladder.

CASE VI.—*Retention of Urine from Congestion of the Urethra: Slight Organic Stricture: Cure.*—Richard Brookes, aged 30, was admitted Nov. 30th, 1860, under Mr. Nesbitt. He was unmarried, by occupation a gasfitter. The patient was suffering from retention of urine. The attack commenced a week previously. After he had been working all day in the wet, he went home, and found he was unable to pass urine. A surgeon saw him, and unsuccessful attempts were made by him and three others to pass a catheter; large and small sized silver and gum-elastic instruments being used. Eight years since, whilst living in Liverpool, had gonorrhœa; and four years ago, after drinking freely, had retention of urine. Eight months since, he contracted a second gonorrhœa; and since then he had noticed the stream of urine to be smaller, and had had to micturate oftener. At present he was in great pain; and the bladder was much distended, and the perinæum tender. I passed No. 6 silver catheter, and evacuated the urine. On December 1st, the patient had passed urine several times; but on each occasion he had felt great burning pain in the perinæum. A linseed-meal poultice was applied to the perinæum. On December 9th, he felt much better, and had no pain when he passed urine. I introduced No. 3 graduated sound. On December 12th, I passed No. 4 graduated sound. On December 13th he was made an out-patient.

CASE VII.—*Retention of Urine: Stricture of the Urethra: Dilatation: Cure.*—James Stuck, aged 58, was admitted Dec. 13th, 1860, under Mr. Coleman's care. I could gather very little about the patient, as he was deaf and dumb. I made out, however, that retention of urine had lasted some days; a little water, however, now and then passed from the urethra. Frequent attempts had been made to pass an instrument, but with no success. After each attempt, blood flowed freely. The bladder was prominent above the pubes; and percussion was dull from the umbilicus downwards. The perinæum was tender; but no lump or hardness was perceived. The prostate was enlarged, especially on the left side; it was not tender. On passing a No. 8 catheter, it was arrested five and a quarter inches from the meatus. Smaller instruments were attempted, and at last I tried No.  $\frac{1}{2}$ ; and, after gentle efforts for nearly half an hour, it entered the stricture, and passed on into the bladder. The urine flowed *guttatim*, the instrument being blocked up withropy mucus. The catheter was tied in. On December 14th, the patient had been pretty comfortable. The urine flowed by the side of the catheter. I withdrew No.  $\frac{1}{2}$ , and passed Nos. 1, 2, and 3, silver catheters. He was ordered to take fifteen minims of tincture of hyoscyamus in an ounce and a half of infusion of buchu three times a day; and to have a hip-bath. On December 15th, he had a good deal of perinæal pain; and a linseed-meal poultice was applied. On December 27th, I passed Nos. 1 and 2, after

a little difficulty with each. The urethra was very rough about the stricture. On December 31st, I passed No. 3 graduated sound. On January 29th, 1861, he was discharged quite well, No 5 being easily passed.

CASE VIII.—*Perinæal Abscess: Stricture of the Urethra (Traumatic): Cure.*—John Rhodes, aged 43, was admitted March 4th, 1861, under Mr. Coleman's care. Twelve years ago he received in the perinæum a kick, which, from his statement, must have ruptured his urethra. He was treated by a surgeon, and attempts were made to pass an instrument; but none were ever passed into the bladder. The stream of urine soon began to diminish in size; and at last it became very small, and he had to micturate with great straining. About a week since, after great difficulty in passing urine, and having constantly to strain much, he felt a lump in the perinæum. Sometimes the swelling was larger than at other times; but it was not always painful on urinating. After evacuating his bladder, the enlargement decreased. There was now distinct evidence of a recent perinæal abscess; that is to say, there was great induration and swelling in the perinæum; and a small opening existed, through which the urine occasionally passed. He had had no previous lumbar pain. I passed No. 8 silver catheter, and it was arrested six inches from the meatus. After a little management and care, a No. 1 graduated sound reached the bladder. A linseed-meal poultice was applied to the perinæum, and the following draught ordered to be taken three times a day.

R Potassæ bicarbon. ʒ ss; sodæ potassio-tartrat. ʒ i; tincturæ hyoseyami ℥ x; aquæ ʒ i. M.

On March 8th, I passed No. 1 sound with difficulty, and left it in the bladder. On March 9th, the patient had had no shivering during the night. He made several attempts to pass urine. The instrument was withdrawn, and No. 3 graduated sound was passed. On March 10th, the patient had been very comfortable. He passed urine more easily, and in a large stream. I passed Nos. 3 and 4 graduated sounds. On March 24th, I passed Nos. 4 and 5; and on April 2nd, he was discharged.

CASE IX.—*Retention of Urine: Spasmodic Organic Stricture: Cure.*—J. Price, aged 56, was admitted June 1st, 1861, under Mr. Coleman's care. He was by occupation a labourer, was married, but had no family: habits were regular, on the whole. About twenty years ago had gonorrhœa, which, he said, "ran itself out." About six years since, he noticed that the stream of urine was decreasing; and from this time it gradually lessened. He never had retention before admission. He had had very little lumbar pain. Retention of urine had continued for eight hours; and instruments had been frequently employed, but with no success. I found that No. 8 silver catheter was arrested five inches and three-quarters from the urethral orifice. I tried other and smaller instruments; but I could not succeed. He was ordered to have a warm bath, and forty minims of tincture of opium immediately. He was soon relieved; and on June 15th I passed No. 1 graduated sound, olive oil having been previously injected into the urethra. On June 18th I passed Nos. 2 and 3 graduated sounds; and on June 26th, Nos. 2, 3, and 4. On July 2nd he was discharged, cured.

CASE X.—*Traumatic Stricture of the Urethra (ten years' duration).*—B. H., aged 60, was admitted under Mr. Coleman, September 24, 1861; occupation, a railway

porter. A week previously, whilst working as a plate-layer on the railway, and lifting some heavy pieces of iron, felt a severe pain in the lower part of the abdomen. Two days after was unable to get out of bed, and could not stand upright. Lumbar pain felt, urine voided was of a very high colour, but no blood (he says) was mixed with it; smarting pain along the urethra. Ten years ago, whilst working on the railway, a large quantity of earth fell upon his abdomen and legs; when extricated he found he could not walk or move his legs; was immediately carried home by his companions, and a surgeon saw him. After a short time retention of urine occurred, and instruments were used unsuccessfully at various times for a period of three days, when No. 4 reached the bladder. Previous to retention blood passed by the urethra. For nineteen weeks he continued under treatment, and then went home, micturation being still very difficult. Eight years since enlisted as a soldier, and attempts were then made to relieve his stricture, but no instrument beyond No. 4 could be passed. Has never suffered from gonorrhœa or syphilis. On examination in the perineum slight hardness of a linear character, but no pain on pressure, no discharge from the urethra; a No. 8, passed down the urethra for a distance of  $6\frac{3}{4}$  inches, was arrested apparently under the arch of the pubes; No. 4 catheter passed into the bladder. To remain in bed, and apply Hirudines iv. to the abdomen, warm fomentation afterwards.

R mixt. salinæ  $\bar{z}$  i, ter diæ sumed.

September 30th.—Feels much better, but still complains of a smarting pain in the urethra; passed Nos 2 and 3 graduated sounds.

October 2nd.—Much improved; passed Nos. 3, 4, and 5 sounds, the latter somewhat difficult.

October 4th.—Passed Nos. 4 and 5 sounds.

October 8th.—Discharged.

CASE XI.—*Stricture of the Urethra (thirty years' duration): Dilatation: Cure.*—W. H., aged 60, admitted October 15th, 1861; occupation, an engineer; lives at Willenhall; is a native of Warwickshire, but has dwelt in Willenhall for the last 13 years. Has been married 30 years, and has four children, all of which are living. About 40 years since had gonorrhœa severely; this he neglected; at the same time suffered from a sore on the penis at the end of the glans. Habits have been temperate. About 30 years since noticed a diminution in the stream of urine, but no inconvenience attended it; gradually, however, increased difficulty in micturition occurred, and about 11 years the stream was very small and at times forked; never had retention. For the last three years has had considerable lumbar pain, especially when employed in his work. Attempts have been made frequently to pass instruments into the bladder, but with no success. On examining the penis a small wart with a broad base is seen passing from the lower part of the meatus urenarius to corona. On pressing with the finger in the perinæum no pain is caused, but at the lower part of the urethra, apparently in front of the bulb, a well marked hardness is perceived; its extent is small. On desiring the patient to make water, after straining a considerable period, the urine flows guttatim only. Is constantly making efforts to micturate, his linen is always wet with urine, and his condition is very offensive to himself and others. Each night the bed clothes are saturated with urine, and he

is constantly obliged to leave his couch to relieve himself. On pressing carefully in the loins a considerable amount of double renal tenderness.

*Urine.*—Colour, light amber; odour, almost nil; semi-transparent; consistence, natural. After standing a few hours, a small deposit of a muco-purulent character is seen. Reaction slightly acid, and contains albumen, specific gravity 1.010. Microscopic examination of the deposit, a very large number of pus-corpuscles, but no casts of renal tubes; no crystals; no blood disks. A No 8 catheter introduced into the urethra was arrested  $5\frac{3}{4}$  inches from the meatus uranienus. After trying other and smaller sized instruments, I at last, after careful manipulation, introduced No. 1 graduated sound into the bladder. To have a hip bath to-night.

R Potassæ bicarbon. 3ss; sodæ pottassio-tartrat. 3i; tincturæ hyoscyami ℞x; aquæ 3i. M. Ter diæ sumed.

R Ung iodinii co.; ung hydrarg, a a 3ss. M. ft. ung to be rubbed on the perinæum night and morning.

October 18th. The scrotum and penis somewhat œdematous from the irritation of the ointment. Omit the use of the ointment.

October 24th. The swelling of scrotum has quite disappeared. Passed No. 1 dilator; but the stricture being very hard and cartilagenous, I determined to pass No. 1 catheter, and tie it in. In the evening was called to see patient, as he was reported to be shivering. I found him in the first stage of a severe shivering fit. Warm bottles to be applied to feet. A hot glass of brandy and water immediately.

R Pit. sapon co. g. x; extract belladonnæ g.  $\frac{1}{2}$ ; sapo castill q. s; ut ft. Supposit, to be used immediately.

October 25th. No return of the shivering fit. During the night urine has passed by the side of the catheter, as well as through it. Catheter, after having been retained for thirty hours, withdrawn. No. 2 graduated dilator now easily passed.

October 27th. Doing well. Ceases to wet his bed at night. Now passes urine in a fair stream. Passed Nos. 2, 3, 4, and 5 graduated dilators.

November 1st. Urine still contains a considerable deposit. Passed Nos. 3, 4, and 5 graduated dilators.

R Tinct. ferr sesquichl, ℞xv.; inf. pareiræ brav. 3iss; ter diæ sum.

November 12th. Discharged.

